**AIM: Write a program to implement various fuzzy set operations.**

**CODE:**

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| # Union of Two Fuzzy Sets  A = dict()  B = dict()  Y = dict()    A = {"a": 0.2, "b": 0.3, "c": 0.6, "d": 0.6}  B = {"a": 0.9, "b": 0.9, "c": 0.4, "d": 0.5}    print('The First Fuzzy Set is :', A)  print('The Second Fuzzy Set is :', B)      for A\_key, B\_key in zip(A, B):      A\_value = A[A\_key]      B\_value = B[B\_key]        if A\_value > B\_value:          Y[A\_key] = A\_value      else:          Y[B\_key] = B\_value    print('Fuzzy Set Union is :', Y)  # Intersection of Two Fuzzy Sets  A = dict()  B = dict()  Y = dict()    A = {"a": 0.2, "b": 0.3, "c": 0.6, "d": 0.6}  B = {"a": 0.9, "b": 0.9, "c": 0.4, "d": 0.5}    for A\_key, B\_key in zip(A, B):      A\_value = A[A\_key]      B\_value = B[B\_key]        if A\_value < B\_value:          Y[A\_key] = A\_value      else:          Y[B\_key] = B\_value  print('Fuzzy Set Intersection is :', Y)  # Complement of a fuzzy set  A = dict()  Y = dict()    A = {"a": 0.2, "b": 0.3, "c": 0.6, "d": 0.6}    for A\_key in A:     Y[A\_key]= 1-A[A\_key]    print('Fuzzy Set Complement is :', Y)  # Difference Between Two Fuzzy Sets  A = dict()  B = dict()  Y = dict()    print('The First Fuzzy Set is :', A)  print('The Second Fuzzy Set is :', B)      for A\_key, B\_key in zip(A, B):      A\_value = A[A\_key]      B\_value = B[B\_key]      B\_value = 1 - B\_value        if A\_value < B\_value:          Y[A\_key] = A\_value      else:          Y[B\_key] = B\_value    print('Fuzzy Set Difference is :', Y) |

**OUTPUT:**

The First Fuzzy Set is : {'a': 0.2, 'b': 0.3, 'c': 0.6, 'd': 0.6}

The Second Fuzzy Set is : {'a': 0.9, 'b': 0.9, 'c': 0.4, 'd': 0.5}

Fuzzy Set Union is : {'a': 0.9, 'b': 0.9, 'c': 0.6, 'd': 0.6}

Fuzzy Set Intersection is : {'a': 0.2, 'b': 0.3, 'c': 0.4, 'd': 0.5}

Fuzzy Set Complement is : {'a': 0.8, 'b': 0.7, 'c': 0.4, 'd': 0.4}

Fuzzy Set Difference is : {"a": 0.1, "b": 0.1, "c": 0.6, "d": 0.5}